

## **Manuel do Carmo Guimarães Monteiro** **Curriculum vitae**

### **Personal data**

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Birth date: November 13<sup>th</sup>, 1952;  
Sex: Male;  
Nationality: Portuguese; Birthplace: S. Mamede Ribatua, Alijó, Portugal  
Language knowledge:

- Portuguese: Mother tongue
- English: thorough knowledge
- French: thorough knowledge
- Italian : Good knowledge
- Spanish: Satisfactory knowledge;

### **Highlights of Professional Experience**

Extensive more than 35 years' professional experience in Telecommunications, Computer Engineering and Management, mainly in the fields of Integrated Telecommunications Networks (including Optical Fibre, mobile and satellites systems), Telematics Systems and System Platforms enabling new service delivery and applications. Later, has also been involved within Information Communication Technology (ICT) fields for Smart City, Energy Efficiency and Future Internet.

Proven successful international career in Information Society Technologies (ISTs) developed during 24 years in the European Commission (1989-2012). This professional experience has included strategic planning and research management of teams around 25 people running multi-annual programmes with average budgets 50 million euros/year. He also worked at a Telecom Operator (Portugal Telecom, ex-CTT) for 11 years (1978-89) in the areas of microwave transmission systems and optical communications. This experience covered the technical planning, installation and operation of telecom systems within Portuguese networks. In particular, he was in charge to introduce the new optical fibre communication technologies in Portuguese telecom including the training and management of technical staff. With a sabbatical period from Portugal Telecom for 2 years (1986-88) worked as Research Officer at UK University, in advanced optical communications research.

In the European Commission as Head of Sector and Deputy Head of Unit for more than 15 years his proven organization qualities, negotiation and management skills contributed to the success of the areas he was in charge, namely future internet, ICT for environment, energy efficiency, support people with disabilities and elderly as well as broadband technologies, including mobile, fix and satellite communications.

Within EC Directorate General Information Society activities he contributed and developed policy initiatives related to his department responsibilities such as eEurope (later i2010), various Research Framework Programmes and European Research Area.

He has also contributed to the regulatory telecommunications framework as well as to standardisation in telecommunications and consumer electronics.

### **Publications**

Author or co-author, of 2 books, various reports and over 30 papers published in international conferences or journals in communications networks, applications, service delivery and telematics aspects.

### **Academic Degrees**

Post – Graduation degree in Management, Business and Administration (CEPAC), at École de Solvay Université Libre de Bruxelles, Belgium, 1995.

Master degree in Telecommunications and Computers with a thesis on optical fibre and laser technology, at the Instituto Superior Técnico da Universidade Técnica de Lisboa, Portugal, 1985;

“Licenciado”, University degree in Electronics Engineering – option Automation and Control, at Faculdade de Engenharia da Universidade do Porto, Portugal, 1977.

### **Support of Telecommunications policy**

My technological background has led me to support regulation exercises (mainly within EC Services such as DG INFSO/B) in which the following principles were followed: regulating only when necessary for promoting better competition, promoting self-regulation and developing ways to deal with liability.

#### **Professional Experience in European Commission DG CONNECT (formerly DG INFSO/ XIII June 1st, 1989 – November 30<sup>th</sup>, 2012 )**

Over 15 years' experience of middle management in EU Community programmes as Head of Sector and Deputy Head of Unit.

Followed a common approach to strategic management of research: techno-economic justification and development plan including business profile (current state of technological development and trends, important factors for improvement, opportunities and threats, stakeholders); mission, strategic plan (objectives strategies, marketing / exploitation of results, standards, laws and regulations); new developments. As a consequence prepared the work-plan for the calls for proposals of new projects in several areas and co-ordinated several evaluation and audit panels, namely at following programmes:

**FIRE** (Future Internet Research Experimentation), **2011-2012**; **ICT for Energy Efficiency & Environment**, **2007-2011**; **Communications and Networks**, **2004-2007**; **TAP-DE** (Telematics Applications for Disabled and Elderly People), **1998-2004** and **1993-1996**; **TEN-Telecom** (Trans-European Networks of Telecommunications), **1996-1998**; **TIDE** (Technology Initiative for Disabled and Elderly People), **1992-1993**; **COST Telecom** Programme (Scientific and Technology Co-operation), **1989-1992**.

**01FEB11-30NOV12:** Deputy Head of Unit (CNECT.E4/INFSO.F4) – FIRE (Future Internet Research experimentation [http://cordis.europa.eu/fp7/ict/fire/home\\_en.html](http://cordis.europa.eu/fp7/ict/fire/home_en.html) ) Supported the Head of Unit (and replacing him during his absences) on Unit management and motivation of 20 people team with annual budget around 50 million euro. Coaching new staff, support during handover or difficult technical/contractual dossiers. Followed-up the Unit work progress as well as monitored the Unit budget and contractual matters with the assistance of Officials. Reviewing Unit work plans, made proposals on priorities and re-allocation of tasks to staff. Coordinated and stimulated the Unit web communication as well as awareness activities. Organized and followed-up links to policy, in particular for the Unit Topics area. Coordinating and revising the drafting of new work programs and roadmaps drafts in the area of Future Internet experimentation and its innovation platforms within smart city applications and services. ( [http://cordis.europa.eu/fp7/ict/fire/connected-smart-cities/csc\\_en.html](http://cordis.europa.eu/fp7/ict/fire/connected-smart-cities/csc_en.html) ) Stirred the Future Internet Research Experimentation architecture board with representatives from FIRE platform projects to foster cooperation between R&D projects as well as stimulating brainstorm discussions to review vision and prepare new activities. Prepared the basis for the future strategy and objectives at next EU multiannual program covering Future Internet Experimentation. [http://ec.europa.eu/information\\_society/events/ictproposersday/2012/index\\_en.htm](http://ec.europa.eu/information_society/events/ictproposersday/2012/index_en.htm) Supported the Director for international cooperation EU- Brazil ( [http://cordis.europa.eu/fp7/ict/fire/events/2012-fia-aalborg/20120509-brazil-eu-fia\\_en.html](http://cordis.europa.eu/fp7/ict/fire/events/2012-fia-aalborg/20120509-brazil-eu-fia_en.html) ) and EU-Japan including high level bilateral meetings preparation and follow-up to launch coordinated call for future joint projects.

**01APR07-31JAN11-:** Deputy Head of Unit (INFSO.H4) – ICT for Sustainable Growth (Environment, Energy Efficiency and Water Resources Management).( [http://cordis.europa.eu/fp7/ict/sustainable-growth/home\\_en.html](http://cordis.europa.eu/fp7/ict/sustainable-growth/home_en.html) ) Assisting Head of Unit (and replacing her during her absences) on Unit management and motivation of Unit team of 25 people with annual budget around 150 million euros; representing Unit at high level meetings (within Directorate, Directorate General, Commissioner Cabinet and other services and external organizations – EICTA, ETNO GeSI).

Coordinated contributions to EC documents drafting in the areas of “ICT for Energy Efficiency” and “ICT for Environment”. These activities were handled in collaboration with other EC services to prepare strategic documents, including contributions to Inter Service Consultation (CIS). To support DG and other EC Services when requested on topics related to Unit activities.

Coordinated preparations of Call for proposals, including participation and organization of workshops and conference sessions to raise the awareness of Unit activity areas and in particular to prepare new actions such as the building-up new ICT for water management area within the unit activities ([http://ec.europa.eu/information\\_society/activities/sustainable\\_growth/water/index\\_en.htm](http://ec.europa.eu/information_society/activities/sustainable_growth/water/index_en.htm) ) ; chairing consultation workshops, presenting sector actions at those events and INFO days for the ICT program, such as National Contact Points (NCP) meetings.

Taking measures, in collaboration with other services to improve IT tools performance and staff awareness as well as skills on those tools.

Managing group of project covering financial and administrative procedures to keep them under target / deadlines associated with respective contracts and payments to projects

**01FEB04-31MAR07-:** Deputy Head of Unit INFSO D1, Communications and Network Technologies.  
[http://cordis.europa.eu/fp7/ict/future-networks/home\\_en.html](http://cordis.europa.eu/fp7/ict/future-networks/home_en.html)

Assisted Head of this Unit and replacing him during his absences to manage and motivate a team of 35 people responsible for following-up more than 90 R&D projects with EC funding around 480 MEUR (near 1 billion EUR cost) for 5 years period programme plus overlap between different programmes transition. These activities include task allocation to staff, monitoring its implementation within agreed deadlines and established procedures plus to follow-up department objectives to accomplish its mission goals. In particular, it was necessary to adapt quickly to new working environment and domains in this Unit, assisting the Head of Unit to rebuild new team work culture and methodologies due to this Unit being at that time at big reorganization associated with staff mobility. Furthermore, he has coached new staff and building team spirit to integrate necessary skills for Unit high professional level achievements record. At end of 2005, following Head of INFSO.D1 Unit replacement his co-ordination activities and support to hierarchy were essential to smoothly handling of that handover transition period.

Since 2005 he has concentrated efforts on Coordination and Support Activities projects to address Broadband Communications area Constituencies need and expectations to develop this field. In fact, he was involved with launching of new Think Tank plus new annual conference series - Broadband Europe and thematic workshops to foster future collaborative research directions, including interoperability and integration of different communication technologies, and rebuilding Broadband Clustering activities and visibility. These latter activities are part of European Research Area exercise in this field to link EU with National and private R&D activities. He followed the emerging EU industrial Technology Platform initiatives in this area as basis for future work. He has also been responsible for impact assessment of Unit activities, strategy, co-ordination of work programme revision and preparation of future activities in Broadband for All – wired and wireless technologies areas; co-ordination of Concertation activities, technical and political contributions to i2010/ eEurope Action Plan addressing Broadband Digital Divide matters. He has also been involved at initiatives to support international cooperation in the area of broadband communications. He coordinated Call for proposals preparation in the area of Broadband for All, including Priority 8 – R&D support to policy, European Research Area (ERA), International Cooperation (INCO) and one specific for R&D (IST-Call4)

In various occasions, namely in 2004 and later in 2006, due to the insufficient number of Project Officers to cope with projects workload, besides his duties as Deputy Head of Unit he was also responsible for the follow-up monitoring, associated contractual matters including administrative, financial and content of more than 10 R&D projects; he was also responsible for negotiation of new projects.

**31JAN03-1JAN04:** As Deputy Head of Unit – Information Society Technology Applications related to Elderly and Persons with Disabilities (e-Inclusion) – DG INFSO.F5

[http://ec.europa.eu/information\\_society/activities/einclusion/index\\_en.htm](http://ec.europa.eu/information_society/activities/einclusion/index_en.htm)

Main duties were to support the Head of Unit for the overall organisation and management of the activities. In particular, during year 2003 coordinated briefings preparation for his hierarchy and cabinet in matters related to eInclusion. Moreover, prepared transition period for new Head of Unit to take over his duties assisting him on daily management and at preparation and planning future activities.

- He was also responsible, namely for: impact assessment of Unit activities, strategy, co-ordination of work programme revision, preparation of future activities in this Sector and co-ordinating drafting/editing with experts contributions to policy papers plus some report sections at various working groups such as eAccessibility Expert Group, INCOM subgroup of Communications Committee – COCOM. Some of these reports were converted into EC working documents and adopted by High Level Groups who endorsed some of their recommendations. These activities included inter service consultations and collaboration with another EC Services, Institutions and External Organizations plus contributions to EC Commissioners Cabinet and Press Services. Moreover, negotiated and managed Coordination and Support Activities projects to support reorganization of constituency and launching studies and Observatory surveys to identify trends plus strengths, weakness, opportunities and threatens (SWOT) in this field. This exercise included updated of Member States National programmes survey to support European Research Area strategies in this field.

- Coordinated planning, preparation and organization of IST Call-2 for Proposals in the area of eInclusion; being the EC contact point for clarifications related to this call; responsible for presentations to Constituency plus potential new actors; briefing Experts and Rapporteurs on this exercise rules and procedures; follow-up and monitor call-2 evaluation in terms of quality control and procedures; training staff and coaching new staff.; handling any expected problem and/or difficulties in order to guarantee a smooth and fair exercise. Prepared EC Implementation Plan of this call-2 results based on Evaluation Panel Reports.

- Coordinated FP7 (7<sup>th</sup> R&D Frame Work Programme) preparation with launching Think Tank to prepare roadmaps, research strategies and priorities followed by consultation and validation mechanisms with constituencies such as workshops, web on-line discussing groups/ forum and concertation meetings.

**1NOV03-31DEC03:** Following resignation of Head of INFSO.B2 Unit, appointed *Acting Head (f.f.- "faire fonctions")* of this Unit (IST Applications for People with Disabilities and Elderly People). Then, he was in charge of DG INFSO.B2 Unit management with around 25 Staff Member size (A, B, C grades plus AUX, INTERIM and "Expert National Detachée" - END). At this position, the main functions and duties have been the following:

- Management and motivation of Unit team of around 25 people including staff performance assessment (CDR) and representing Unit at meetings.

- Follow-up contract payments and Unit budget spent in accordance with planed targets for this Unit.

- Coordination of Unit actives related to implementation of 5<sup>th</sup> Framework Programme (FP), preparation of Unit area constituency for 6<sup>th</sup> FP new instruments, eEurope Action Plans (2002 work progress report and new road map for 2005 plan), international co-operation and contributions for European Year of people with disabilities 2003 (Y2003).

**1NOV02-31OCT03:** Appointed *Deputy Head of Unit*– Information Society Technology Applications related to Elderly and Persons with Disabilities – DG INFSO.F5; his main duties were to support the new Head of Unit for the overall organisation and management of the activities. This function included the management and motivation of Unit team of around 25 people plus representing Unit at high level meetings (within Directorate, Directorate General, Commissioner Cabinet and other services plus external organisations). In particular, coordinated briefings preparation for his hierarchy and cabinet in matters related to eInclusion. Moreover, prepared transition period for new Head of Unit to take over his duties assisting him on daily management; it included the advising on planning, organization and preparation of running and future activities. In particular, monitoring work progress and introduction corrective measures when necessary in order to Unit achieve objectives and deadlines in terms of project contract negotiation, preparation, management and payments. Some of these deadlines were discussed and fixed at Directorate level.

- Co-ordinated Unit Technical work, including interfaces with other EC Services and Institutions such as DG-RTD Unit – The Ageing of Population, DG-ENT – Unit standardisation and DG-EAC - Design-for-All Curriculum to address recommendations and policies in these fields. This co-ordination activity also encompassed cluster leader role to stimulate concertation and improve synergy among RTD projects addressing independent living of older people and people with disabilities.

- Coached and trained new staff and stimulated the build-up of team spirit to motivate and integrate staff with different experiences, skills and backgrounds towards a trust and friendly environment to cope with workload and pressure. In particular, he coordinated call for proposal preparation and evaluation in close cooperation with Head of Unit and other Services. This call for proposal results were the basis for EC Implementation Plan submitted to Member States Committee at IST Programme. He follow-up new project negotiation process progress.

- He was also responsible, namely for: impact assessment of Unit activities, strategy, co-ordination of work programme revision, preparation of future activities in this Field and co-ordinating drafting/editing with experts contributions to policy papers plus some report sections at various working groups such as eAccessibility Expert Group, standardisation and interservices with other EC Services and Institutions. Some of these reports were converted into EC working documents and adopted by High Level Groups who endorsed some of their recommendations. These activities included briefings to EC Commissioners Cabinet and Press Services.

- Supported also hierarchy for High-Level Dialogue with USA plus International Cooperation with Canada, Japan and Latin America in the area o eAccessibility.

**15FEB99- OCT02:** Appointed *Head of Sector* – Take up Measures – within the Unit (EC-DG-INFSO.B2) - IST (Information Society Technologies) Applications for People with Special Needs,

including People with Disabilities and Elderly People. At this position, the main functions and duties were the following:

- Replacing the Head of Unit during his absences on the management of the Unit. This function included the management and motivation of Unit team of around 20 people plus representing Unit at high level meetings (within Directorate, Directorate General, Commissioner Cabinet and other services plus external organisations).
- Co-ordinated Unit Technical work, including interfaces with other services such as DG-RTD Unit – The Ageing of Population, DG-ENT – Unit standardisation and DG-EAC – Unit Design-for-All Curriculum. This co-ordination activity also encompassed cluster leader role to stimulate concertation and improve synergy among RTD projects addressing independent living of older people and people with disabilities.
- Co-ordinating the drafting and associated activities for an EC Communication followed by Council and European Parliament resolutions on “Public web sites accessibility”. These activities included discussions and negotiations at Council and EP Groups in collaboration with other EC services to prepare those resolutions. To support EC Cabinet and other relevant EC Services related to decision process and awareness (press). As a major result of these activities it was adopted by the Council one set of recommendations to improve accessibility of all public web sites by people with disabilities.
- Co-ordinated drafting / editing of strategic and working documents in the area of IST applications for Disabled and Elderly People for the preparation of new activities for the Sector such as RTD framework programmes drafts and IST work programme revisions.
- Co-ordinated Call for proposals, preparation of planning and evaluation, the e-Europe Action Plan preparation, followed by its monitoring (this activity is handled in collaboration with other Services).
- Co-ordinated interface and links between INFSO.B2 RTD activities and Social Inclusion policy under DG EMP.
- Advised the Head of Unit on strategy, communication and implementation of this Unit objectives and work.
- Advised the Unit and B Directorate on programme monitoring for this Sector action, including take-up measures to foster deployment of R&D results.
- Reviewed Unit work plans, made proposals on future priorities and re-allocation of tasks to staff; coaching and supporting new staff.
- Follow-up Unit budget implementation and overview of contract preparation in accordance with Directorate B targets.
- Follow-up on behalf of Directorate B IST Cross Programme Action (CPA) 2 - Multisensorial, Multimodal Intelligent Interfaces – activities, including work programmes, calls plus evaluation preparations.
- Liaison with European Parliament – Disability Intergroup, with Council of Europe Committee for analysing the impact of technology on quality of life for people with disabilities and with Member States High Level Group for Employment and Social Policy within Information Society.
- Co-ordinated preparations of Call for proposals and the organisation of workshops and conference sessions for the awareness of Sector activities and to prepare new actions; making presentations about this sector actions at those events plus INFO days for the IST programme.
- To support the Unit for the International Co-operation with USA, Canada, Japan and Latin American countries for the Sector People with Special Needs, including the Disabled and the Elderly. These activities are co-ordinated with other services such as RELEX.
- Managed one group of operational IST (Information Society Technologies) Framework RTD Programme Projects and negotiated new projects including Support Measures for the Take-up in the area of new IST applications, products and services for people with special needs. Among these projects a few were addressing teleassistance to support social and health care at home of older people and people with disabilities.

**OCT97-14 FEB99 -:** Following EC internal competition got a permanent statutory staff post at TEN-Telecom Programme (EC-DGXIII.G3), as Principal Administrator.

([http://europa.eu/legislation\\_summaries/information\\_society/strategies/124226e\\_en.htm](http://europa.eu/legislation_summaries/information_society/strategies/124226e_en.htm) ) Then, his main functions and duties were the following:

- Contribution to the TEN-Telecom work programme, including set-up of workshops and discussion group of Experts to collect ideas and to promote programme strategy and priorities to foster new telecom technologies roll-out.
- Development of new sector of activities in TEN-Telecom Programme addressing the interoperability of telecom networks, including satellites, mobile and broadband fix networks. This new sector also included activities for the deployment of new services and applications supported by satellite and mobile telecommunications in the areas of transport, mobility and environment.

- Awareness and dissemination of TEN-Telecom activities such as the organisation and chairing of the workshops as well as making presentations at conferences and other events including “National Information Days” at various Member States.
- Responsible for the preparation and launch of the TEN-Telecom call for proposals 1998/1 in the field of interoperation and development of networks, with a special emphasis on broadband satellite networks.
- Management of projects in the fields of networks and value-added telecommunication services for transport, mobility and environment roll-out.
- Responsible for the ASTRON (Applications on the Synergy of satellite Telecommunications, eaRth Observation and Navigation) co-operation initiative with the JRC (Ispra); being appointed as representative of DGXIII to be the interface and to follow-up this JRC initiative.
- To support the TEN-Telecom Unit, in the area of satellite communications applications and services deployment, with drafts and comments to documents associated with inter-services consultations and Commission Communications.
- To provide the appropriate liaison with various related bodies and organisations in the field of new applications and services supported by satellites and mobile communications such as the “EU Satellite Action Plan Group” and the “GNSS-2 WG2 – Finance and Technical issues” as well as other EC Services. At this activity it was prepared the EU satellite communication strategic approaches and roadmap.

**NOV92- SEP97:** Under the EC staff mobility scheme and following the invitation of Mr. Ballabio, responsible for EC-DGXIII.C5 - TIDE (Telematics for the Integration of Disabled and Elderly People) actions, joined TIDE program as Project Scientific Officer and Acting Deputy to Head of Unit to co-ordinate informatics and personnel matters. Then, he was engaged with the following functions:

**- Acting Deputy to Head of Unit (f.f.)**

As Acting Deputy to the Head of Unit his duties included supporting the Head of Unit as his Deputy and replacing him during absences on various activities, for example:

- Selection of Experts, A, B and C grades Personnel, planning unit activities, chairing meetings including Unit meetings, representing XIII.C.5 Unit at meetings and events including HoU meetings, advising on programme monitoring and the publicity of success stories, liaising with Industry and Parliament, co-ordinating call evaluations and preparing new contracts, liaising with other EC services, coaching and supporting new staff.

**- Project Scientific Officer**

As project scientific officer his duties included:

- Following up the technical and administrative progress of nine TIDE Bridge Phase and TAP-DE projects, as well as one Copernicus project,
- Making presentations on TIDE activities, including participation at INFO days,
- Preparing workshops, conferences, calls for proposals, evaluation and analysis of technical annexes.
- Providing appropriate liaison with various related bodies and organisations in the field of disability and human impairment due to age, including the Inter-Service Group for Disability as well as EP Group for Disability, Secretary of the TIDE Bridge Phase Committee and TPC Working Group of the Telematics Programme (DE Sector), participating at the Task Force for the TIDE Bridge Phase evaluation, participating on the preparation of the 5FP, at meeting discussions, reviewing drafts and co-ordinating actions with experts from the rehabilitation technology field, international co-operation with PECO/INCO countries to stimulate their participation as partners in new TAP-DE projects and following up standards, regulations and Telecom policy concerning DE issues.
- To contribute for the preparation and revision of TIDE legal basis and Call for Proposals text drafts.
- To follow-up TIDE project contracts and database.

**JUN89-NOV92:** Joined European Commission as **Scientific Officer** for the COST Telecom Programme (EC-DGXIII.D1) [http://www.cost.eu/domains\\_actions/ict](http://www.cost.eu/domains_actions/ict) where the main tasks were:

- Participation at COST Telecommunication Project Management Committee meetings providing technical secretariat, exchanging information on EC and COST activities and advising on work organisation for several projects.
- Chairing meetings and Conference Sessions.
- Co-ordination and follow-up of COST Telecommunication research projects plus making the liaison with some EC programs such as RACE, DRIVE, ESPRIT, SCIENCE as well as the Telecom policy and standardisation groups.
- Coordinate the drafting/editing of Annual Interim Reports and the Final Reports such as for the projects COST 210, COST 215 and COST 216.

- Organisation of Management Committee meetings and several seminars and workshops to prepare strategy and forecast of research cooperation in telecommunications field.
- Within the unit, to assist the head of unit to plan and control the COST Telecommunication budget and to represent when necessary COST Telecom Sector at the Technical Committee of Telecommunication (TCT) or COST Senior Official Committee level meetings.
- Selection of A, B and C grade personnel as well as Experts.
- Organising and participated at the committee of the COST Ministerial Conference and Scientific Forum in Vienna on 20-22 November 1991.
- Liaison with other EU Institution Services such as DG-RTD (ex-xII) and COST Council.
- Liaison with other CEC departments for printing reports, COST publicity and public relations.
- Preparation and organisation of new COST Telecom research projects (e.g. COST 238, COST 242) and presentation of COST activities at several conferences and meetings in European Research & Development Institutions outside the COST framework.
- Co-ordination and follow-up of proposals evaluation from PECO (Pays de la Europe Centrale et Orientale) under COST Telecom framework. After the preparation of PECO proposals evaluation report in collaboration with other members of COST Telecom team, presentation and discussion of such report at COST Senior Official Sub-Committee.
- Set-up and develop contacts with new COST countries, especially with Central and Eastern Europe (PECO), in order to improve science and technology co-operation under various EC schemes and COST framework.

### **Previous Professional Experience**

**1978-1989:** At Portugal Telecom (PT, ex-CTT) operator <http://www.telecom.pt/InternetResource/PTSite/UK/> he took various jobs in the area of telecommunications systems, namely microwaves radio and optical fibres transmission; these jobs included management of engineering teams of average 25 technical staff, being responsible for design, feasibility studies and implementation of communication systems plus training operational staff. He was also in charge of preparing international tenders and negotiation of techno-economic matters to select new or upgrading telecommunication systems. In particular, it might be highlighted the following:

- In October **1988**, joined Innovation & Development Unit at PT where he developed new optical fibre telecommunication systems (140 Mbit/s) and prepared the transfer of this technology to this company plus Portuguese industry. He participated at CEPT meetings and coordinated PT company activities associated with CCITT for recommendations and standardisation efforts in the area of optical communication area. Presented at various seminars papers and communications in this field and was responsible for liaison with other industrial players and Universities in this domain. In particular being involved and representing PT company at national Portuguese RTD programme to develop the local broadband networks with optical fibre supporting potential roll-out of the wideband services.

- **1986-1988:** Under a sabbatical leave of absence from Portugal Telecom and with an UK Industrial scholarship he was Research Officer at the North Wales University in UK where he was involved in RTD activities, namely modelling & simulation of advanced optical fibre telecommunication systems. Results were presented at conferences and through technical publications. In particular it might be highlight the following activities:

- As Research Officer the main activity was modelling advanced optical telecommunication systems to assess its impairments and limitations, such as, band limiting effect for high bit rate with optical coherent detection. At the optical laboratory prepared and run demonstrations and set-up of equipment.

- Prepared a seminar on "Further Links Between Signal Processing and Channel Coding with Special Reference to Optical PPM", at University Department and presented the main conclusions at Polymodel 10 Conference, Sunderland, and May 1987.

- In **1985:** he was involved on the introduction of fibre optics and laser technologies in the area of telecommunications in Portugal with the installation of the first 2 systems using these technologies. In particular, he organized awareness sessions through workshops and seminars to prepare telecom actors to the adoption of this new technology. Prepared the decision makers as well as technical staff to handle new technologies and prepare strategy and support planning papers for the network development. Besides representing Portugal at international organizations such as CEPT for the harmonization of optical communications, he also participated at conferences in this field to present Portuguese experience.

- **JAN84-FEB86:** Acting Head of Cable Transmission Division (Unit) at Portugal Telecom Engineering Directorate (DET), being at that time responsible for strategic plan for both coaxial and fibre optic communications including the management and motivation of 5 engineer designers team plus external technical teams in charge of installation as well as running network telecom systems. Our activities were part of telecom move from analogue to digital communications. In particular handled the following activities:

- Prepare consultations to national and international markets about optical fibre transmission systems, associated measurement equipment and analyse them regarding CCITT and CEPT recommendations; to introduce new cable insulation technology and new cable ducts in the PTT network through contacts with telecommunication cable suppliers and European Telecom authorities; to analyse the wind characteristic in Portugal in order to characterise the fibre optic aerial cable accordingly; to study the protection against atmospheric discharges on copper conventional telecommunication aerial cables; to inquire about present Portuguese PTT trunk and regional cable network towards its modernisation step definition regarding operational quality and efficiency; to study measuring techniques for optical telecommunication systems in view to support the organisation of a national maintenance laboratory for these systems; to study data acquisition systems for optical transmission quality analysis; to carry out optical link technical-economical analysis, namely for the first systems installed in Portugal (850 nm - 34 Mbit/s: Leiria-Marinha Grande and S. João da Madeira-Oliveira de Azemeis) and feasibility study of videoconference transmission through optical fibre cable (connecting a video study with a microwave transmission system for Lisboa-Porto).

**SEP78-DEC79:** Together with Telecommunication Engineering functions at the Portuguese Telecom (ex-CTT), during this period he joined the Compulsory Military Service at the Engineering Army. There, he studied and calculated the electric power distribution with associated protections and illumination design for several buildings. He produced several studies on the protection against atmospheric discharges, collective antennas, and inter-communications; he also prepared technical specifications for open tenders and provided technical-economical consultancy in this area.

**NOV77-MAY78:** After University graduation in Electro-technical Engineering he took an Engineering Training post at the Portuguese P.T.T. - Group of Service Installation at the Oporto New Mail Central (GISP-CTT). During this period he studied the control and protection command circuits of the air-conditioned central and elaborated the system service and maintenance manual. After a study, he also redesigned electronic circuits to protect and control the mail transport band system power - the electric phase sequence and absence detector and the photoelectric cell control circuits. He started the organization and implementation of a new Electronics Sector to support the installation and maintenance of the electronic systems and devices then being installed.

**JUL76- OCT77:** Besides his duties as Post Office staff (TEX5) (CTT – Correios Telegrafo e Telecomunicações) <http://www.ctt.pt/fectt/wcmservlet/ctt/en/landingpage.html> at Central Mail Post Office (ECC-Porto/CRP-Devezas), he was in charge of the CRP-Devezas Section for several periods as Head of Section.

**JAN76-NOV75:** Attended the Admission Training Course to the Portuguese Post Office technical staff (TEX).

**OCT73-OCT75:** Worked part-time at the Portuguese Post Office as temporary staff.